

Practitioner's Docket

U 012190-3

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Aharon Meir EYAL, et al

Serial No.: 09/284,160

Group No.: 1621

Filed: October 25, 1999

Examiner: Taylor V. Oh

For: **PROCESS FOR THE RECOVERY OF LACTIC ACID BY CONTACTING
AQUEOUS SOLUTIONS CONTAINING THE SAME WITH A BASIC
ORGANIC EXTRACTANT**

**Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450**

TRANSMITTAL

WARNING: *Failure to file a complete response in compliance with § 1.135(c) leads to a reduction in patent term adjustment - See § 1.704(c)(7).*

1. Transmitted herewith is an amendment for this application.

STATUS

2. The application is qualified as
☐ a small entity.
☒ other than a small entity.

CERTIFICATION UNDER 37 C.F.R. 1.8(a) and 1.10*

*(When using Express Mail, the Express Mail label number is mandatory;
Express Mail certification is optional.)*

I hereby certify that, on the date shown below, this correspondence is being:

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37 C.F.R. 1.8(a)

37 C.F.R. 1.10*

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- ☐ transmitted by facsimile to the Patent and Trademark Office, to **(703) 872-9306**

Date: December 3, 2004

Signature

CLIFFORD J. MASS

(type or print name of person certifying)

Only the date of filing (§ 1.6) will be the date used in a patent term adjustment calculation, although the date on any certificate of mailing or transmission under § 1.8 continues to be taken into account in determining timeliness. See § 1.703(f). Consider "Express Mail Post Office to Addressee" (§ 1.10) or facsimile transmission (§ 1.6(d)) for the reply to be accorded the earliest possible filing date for patent term adjustment calculations.

EXTENSION OF TERM

NOTE: "Extension of Time in Patent Cases (Supplement Amendments) — If a timely and complete response has been filed after a Non-Final Office Action, an extension of time is not required to permit filing and/or entry of an additional amendment after expiration of the shortened statutory period.

If a timely response has been filed after a Final Office Action, an extension of time is required to permit filing and/or entry of a Notice of Appeal or filing and/or entry of an additional amendment after expiration of the shortened statutory period unless the timely-filed response placed the application in condition for allowance. Of course, if a Notice of Appeal has been filed within the shortened statutory period, the period has ceased to run." Notice of December 10, 1985 (1061 O.G. 34-35).

NOTE: See 37 C.F.R. §1.645 for extensions of time in interference proceedings, and 37 C.F.R. § 1.550(c) for extensions of time in reexamination proceedings.

NOTE: 37 C.F.R. § 1.704(b)". . . an applicant shall be deemed to have failed to engage in reasonable efforts to conclude processing or examination of an application for the cumulative total of any periods of time in excess of three months that are taken to reply to any notice or action by the Office making any rejection, objection, argument, or other request, measuring such three-month period from the date the notice or action was mailed or given to the applicant, in which case the period of adjustment set forth in § 1.703 shall be reduced by the number of days, if any, beginning on the day after the date that is three months after the date of mailing or transmission of the Office communication notifying the applicant of the rejection, objection, argument, or other request and ending on the date the reply was filed. The period, or shortened statutory period, for reply that is set in the Office action or notice has no effect on the three-month period set forth in this paragraph."

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply.

(complete (a) or (b), as applicable)

- (a) ☒ Applicant petitions for an extension of time under 37 C.F.R. 1.136 (fees: 37 C.F.R. 1.17(a)(1)-(4)) for the total number of months checked below:

	Extension (months)	Fee for other than <u>small entity</u>	Fee for <u>small entity</u>
<input type="checkbox"/>	one month	\$ 110.00	\$ 55.00
<input type="checkbox"/>	two months	\$ 430.00	\$ 215.00
<input checked="" type="checkbox"/>	three months	\$ 980.00	\$ 490.00
<input type="checkbox"/>	four months	\$ 1,530.00	\$ 765.00
<input type="checkbox"/>	five months	\$ 2,080.00	\$ 1,040.00

Fee: \$ 980

If an additional extension of time is required, please consider this a petition therefor.

(check and complete the next item, if applicable)

- ☐ An extension for _____ months has already been secured. The fee paid therefor of \$ _____ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request \$ _____

OR

- (b) ☐ Applicant believes that no extension of term is required. However, this is a conditional petition being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. 1.16(b)-(d)) has been calculated as shown below:

	(Col. 1)	(Col. 2)	(Col. 3)	SMALL ENTITY	OTHER THAN A SMALL ENTITY
	Claims Remaining After Amendment	Highest No. Previously Paid For	Present Extra	Addit. Fee	Addit. Fee
Total	* Minus	**	=	x \$ 9= \$	x \$ 18= \$
Indep.	* Minus	***	=	x \$ 44= \$	x \$ 88= \$
<input type="checkbox"/> First Presentation of Multiple Dependent Claims				+ \$150= \$	+ \$300= \$
Total Addit. Fee				\$ _____	OR Total Addit. Fee \$ _____

- * If the entry in Col. 1 is less than the entry in Col. 2, write "O" in Col. 3,
 ** If the "Highest No. Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest No. Previously Paid For" IN THIS SPACE is less than 3, enter "3".
 The "Highest No. Previously Paid For" (Total or Indep.) is the highest number found in the appropriate box in Col. 1 of a prior amendment or the number of claims originally filed.

WARNING: "After final rejection or action (§ 1.113) amendments may be made canceling claims or complying with any requirement of form which has been made." 37 C.F.R. 1.116(a) (emphasis added).

(complete (c) or (d), as applicable)

- (c) ☒ No additional fee for claims is required.

OR

- (d) ☐ Total additional fee for claims required \$ _____

FEE PAYMENT

5. ☒ Attached is a check in the sum of \$ 980
☐ Charge Account No. 12-0425 the sum of \$ _____
 A duplicate of this transmittal is attached.

FEE DEFICIENCY

NOTE: If there is a fee deficiency and there is no authorization to charge an account, additional fees are necessary to cover the additional time consumed in making up the original deficiency. If the maximum, six-month period has expired before the deficiency is noted and corrected, the application is held abandoned. In those instances where authorization to charge is included, processing delays are encountered in returning the papers to the PTO Finance Branch in order to apply these charges prior to action on the cases. Authorization to charge the deposit account for any fee deficiency should be checked. See the Notice of April 7, 1986, (1065 O.G. 31-33).

6. ☒ If any additional extension and/or fee is required, charge Account No. 12-0425.

AND/OR

- ☒ If any additional fee for claims is required, charge Account No. 12-0425

Reg. No. 30,086

Tel. No. 212-708-1890

SIGNATURE OF PRACTITIONER

CLIFFORD J. MASS

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New York, N.Y. 10023

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PATENT TRADEMARK OFFICE



1621 \$
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Aharon Meir EYAL, et al
Serial No.: 09/284,160 Group No.: 1621
Filed: October 25, 1999 Examiner.: Taylor V. Oh
For: PROCESS FOR THE RECOVERY OF LACTIC ACID BY CONTACTING
AQUEOUS SOLUTIONS CONTAINING THE SAME WITH A BASIC ORGANIC
EXTRACTANT

Attorney Docket No.: U 012190-3

Commissioner for Patents
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Alexandria, VA 22313-1450

RESPONSE TO OFFICIAL ACTION

The Official Action of June 4, 2004 has been carefully considered and
reconsideration of the application in view of the present submission is respectfully
requested.

CERTIFICATION UNDER 37 C.F.R. 1.8(a) and 1.10*
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Date: December 3, 2004

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CLIFFORD J. MASS

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mailing label placed thereon prior to mailing. 37 C.F.R. 1.10(b).
"Since the filing of correspondence under § 1.10 without the Express Mail mailing label
thereon is an oversight that can be avoided by the exercise of reasonable care, requests for
waiver of this requirement will **not** be granted on petition." Notice of Oct. 24, 1996, 60 Fed.
Reg. 56,439, at 56,442.

Claims 35-53 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Baniel et al in view of King et al. Applicants respectfully traverse this rejection.

The claimed invention is based in part on Applicants' discovery that, in a process for the recovery of lactic acid, it is possible to provide a sequence of operations that obviates the need to operate separate extraction cycles and that uses the extraction power of a stripped extractant having strong extraction power to maximal effect (see specification at page 9, first full paragraph). All claims presently of record include a step (d), which requires extracting the aqueous raffinate solution separated in step (b) with the stripped extractant formed in step (c) to form a lactic acid-containing stripped extractant. As discussed next, this step is not shown or suggested in either of the cited references such that, even assuming for the sake of argument that the references were properly combinable (which they are not- -see discussion further below), the combination would not arrive at the claimed invention.

Baniel

Baniel discusses a process for the production of lactic acid. A lactic acid fermentation broth is contacted with an amine extractant. A separation then creates an organic phase containing the extract and the lactic acid, and an aqueous phase containing the salt of the neutralizing agent (col. 6, lines 33-51, col. 8, lines 11-21, and the Figure).

The aqueous phase is sent to a separation unit to separate out the carbonate or bicarbonate salts which can later be recycled back to the fermentor. The aqueous raffinate stream can be used as a feed stream for animal feed production, or may be recycled back into the system prior to extraction (col. 8, lines 11-50).

The organic phase is sent to a different separation unit, and the lactic acid separated. The depleted organic phase is then preferably recycled back to the extractor (col. 8, line 51-col.9, line 30).

King

King describes a process for recovering carboxylic acid. In a liquid-phase extraction, an aqueous feed stream and an organic extractant [O1] are contacted, and an aqueous stream [A1] and an organic phase extract [O2] are formed.

The aqueous raffinate stream [A1] is removed from the system.

The organic phase extract [O2] is contacted with an aqueous alkylamine or ammonia stream [A2]. This results in an another organic stream [O3] and aqueous stream [A3].

The resulting aqueous acid stream [A3] is dewatered/decomposed, resulting in the carboxylic acid product and an aqueous stream that can be condensed and re-used in the second contacting step as part of A2. Optionally, further steps may be carried

out downstream to purify the carboxylic acid product.

The organic stream [O3] may be recycled for use in the first contacting step as part of O1.

Current Application

Claim 35 of the current application recites:

35. A process for the recovery of lactic acid from an aqueous solution containing lactic acid and a lactate salt, said process comprising:

(a) contacting said aqueous solution with a water immiscible basic amine extractant to form an amine extract containing lactic acid and an aqueous solution containing a lactate salt;

(b) separating said amine extract from said aqueous raffinate;

(c) stripping lactic acid from said amine extract to form a solution of lactic acid and a stripped extactant;

(d) extracting said aqueous raffinate solution separated in step (b) with said stripped extractant formed in step (c) to form a lactic acid-containing stripped extractant; and

(e) using said lactic acid-containing stripped extractant formed in step (d) as said basic amine extractant in step (a).

The Examiner concedes that Baniel does not disclose, teach or suggest that "the basic extractant in step (a) is recycled from step (d)" (Office action of 4 June 2004, page 4, lines 18-19). Applicants agree. Furthermore, Baniel does not disclose, teach, or suggest step (d). Indeed, in Baniel, following the separation of the amine extract, the raffinate stream is sent directly to a separator for salt separation.

King does not make up the deficiency of Baniel, as King also does not disclose, teach, or suggest either of steps (d) or (e). In King, the aqueous raffinate stream "is removed via line 46" (col. 9, lines 25-28). Thus, King does not disclose, teach or suggest step (d). Lacking step (d), King also does not disclose, teach, or suggest step (e).

The lack of steps (d) and (e) in the cited references is evident from an examination of King and Baniel, or from the discussion above.

The Examiner has referred to King et al at column 4, lines 44-55 to support the contention that it would have been obvious for one of skill in the art from King et al to recycle basic trimethylamine extractant in the Baniel et al process. Even assuming for the sake of argument that this were the case, the combination of King and Banion would not show the claimed step (d), which requires extracting the aqueous raffinate solution separated in a specific step (step (b)) with the stripped extractant formed in another specific step (step (c)). These specific recitations are not met by a general allegation that the reference teaches that an extractant can be recycled. Moreover, as discussed above, King et al teach the removal of the aqueous raffinate stream [A1] and thus do not teach, and in fact teach away from, the recycling of extractant for extracting such aqueous raffinate stream (as defined in the claimed step (d)).

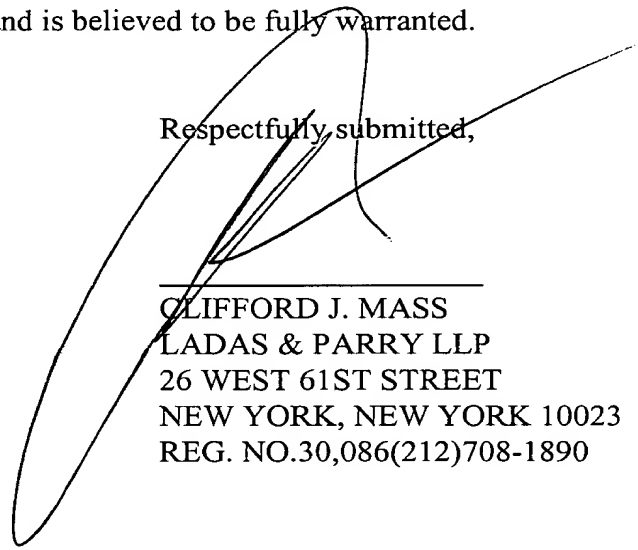
Since the combination of the cited references does not teach or suggest all of the claim limitations, the cited references cannot be considered to set forth even a *prima facie* case of obviousness for the invention as claimed for this reason alone (see MPEP Section 706.02(j)). Moreover, as next discussed, in the absence of the hindsight provided by the present specification, there would have been no motivation to combine the references such that the references are incompetent to set forth a *prima facie* case of obviousness for this reason as well (see MPEP Section 706.02 (j)).

One of skill in the art, using Baniel, would not look to King for ideas to incorporate with Baniel. In fact, Baniel itself teaches away from using King. Baniel refers to King, stating "It is thus evident that the process of U.S. Pat. No. 5,132,456

[King] is unsuitable for the recovery of lactic acid from a fermentation broth" (col. 2, lines 36-38). Thus, one is expressly told by Baniel that King is unsuitable for use with a lactic acid broth.

In view of the above, it is respectfully submitted that the prior art rejection of record should be withdrawn and that the application is in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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